

# Financial analysis of poultry commodity chains in Hanoi Suburb, North of Vietnam

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## Abstract

Poultry production plays an important role in the structure of familial incomes in Vietnam but this activity is currently met with difficulties caused by the great influence of inputs/outputs on the markets and the risks of epidemic diseases. This research was conducted for interviews and records according to book keeping among 280 poultry smallholders; 100 intermediary agents of poultry meat supply chains at the various scales of poultry supply chains and the diversification of poultry markets (poultry producers, private hatcheries, collectors of live poultry, slaughter houses and distributors of poultry meat) in Hanoi Suburb between 2009 and 2010. This research aimed at addressing to improving the income of small poultry producers and identifying the intermediary economic agents and its economic distributions. Furthermore, this research would like to solve restoring the poultry production and the various restraints faced of food contamination in poultry meat supply chains. Institutional organization and financial analysis approaches in different agents was used to calculate the value-added and to explain this problem in poultry meat commodity chains.

Institutional organization of poultry meat supply chains is really complex with diverse economic agents. There are not many poultry meat products have a good traceability. These recent years, broiler industrial chickens and ducks met with some difficulties with the profits were very unstable or loss-making. But this industrial broiler chicken still occupies more and more an important role for the demand of domestic consumers. In addition, color broiler chickens were chosen for more satisfying the Vietnamese taste. In fact, local or color cross-bred broiler chickens have a good economic performance but the output is still instable. Traders of live poultry and manual slaughter-house have a good economic performance caused by using the source of familial labor and selling directly to consumers. The systems of automatic skill of live poultry have still limited. The consumers do not be informed the useful information on food safety standards.

**Keywords:** *poultry supply chains, slaughter houses, value-added, Vietnam*

## **Introduction**

The average growth rate of Vietnam's agricultural production was about 5% per year from 1990 to 2007. In which, the growth rate of animal products was about 9.5% in period of 2000 – 2009. In 2008, Gross Domestic Product (GDP) of animal production occupied 27% of agricultural production value compared with 19% in 1995 (MARD/DLP, 2009; GSO, 2009). However, poultry production remained at small scale with low investment and was mostly for household's self-consumption. Vietnam has about 8.3 millions of smallholders or 70% of total householders that characteristically had low poultry productivity for self-consumption (MARD/DLP, 2008). Poultry production contributed about 19% of the total household income, after pig production with 63%. This contributed to decrease the rate of mal-nutritive children in the rural areas. From early 2004, the Highly Pathogenic Avian Influenza (HPAI) caused by H5N1 virus with about 54 millions of birds culled, has strongly influenced the socioeconomic conditions of poultry producers (MARD/FAO, 2007). In 2009, poultry flock had 280 millions of heads, increasing 13%, as compared to 2008 (GSO, 2009).

Poultry meat consumption was about 15% of total meat in households (VLSS, 2006; MARD/DLP, 2008). Therefore, this animal production is playing a critical role in household income. However, it has been facing several constraints such as epidemic disease, strong fluctuation of price of inputs and outputs, competition of imported meat products. This research aims at analyzing the organization of poultry meat commodity chains at local level of Hanoi Suburb through an identification of poultry farming systems and supply chains with their various constraints.

## **Methodology**

The research began with the collection of meat poultry organization through official reports and the key persons in Vietnam. Then, 280 poultry farms and 100 middlemen at various scales were selected based on the agro-ecological patterns in three districts of Thuong Tin, Phu Xuyen and Chuong My, between 2009 and 2010.

The market institution of meat poultry commodity chains was described by investigation of market and their operation.

Financial analysis approach among various agents was used to calculate the value-added in the poultry commodity chains. Net Value-Added (VAN) = Gross Value-Added (VAB) – Amortization (Amt); where VAB = Gross Products (GP) – Intermediate Inputs (CI).

Net Income (R) are calculated by subtracting the following items from the VAN: financial costs (I), land-tax (T) or salary labor (S), or  $R = VAN - I - S - T$ .

## **Results and Discussion**

### **Market structure**

Smallholders or backyard poultry production require a low investment; free poultry ranging with some different races were raised popularly by the same smallholders. Scale of production ranged on average between 80 and 200 poultry per year, and made up about 90% of poultry farms. Poultry meat production occupied about 65% of whole country (MARD/DLP, 2008). The farm gate price of live poultry was always higher, as compared to other birds, because Vietnamese appreciate its taste, but an important share of the production is self-consumed. About 40% of the products were consumed in smallholders' household and 60% for sale on local market.

Commercial poultry farms and contract farming has appeared in this region in the end of the 1990s. Contract farming system made up less than 0.1%; and commercial farms with more than 200 to 10,000 birds per year per farm made up 9.9% of farms. Poultry products output from this system are occupied about 35% of total poultry meat (MARD/DLP, 2008). In recent years, broiler industrial chickens and ducks faced some difficulties, with the profits very unstable or loss-making. Therefore, colour broiler chickens or cross-bred races were chosen for more satisfying the domestic demand.

Before 2004, supermarkets system was not popular and the live poultry was popularly bought in all wet markets (village markets or small markets in urban zones) from rural to urban. Nowadays, with the fast urbanization process and higher knowledge, urban consumers have been shifting more and more from live poultry to products of slaughtered poultry. In

addition, the consumers use to buy the poultry meat at supermarkets or butcheries. But so far the supermarket system was not kept pace with the demand of consumers.

Together with supermarket development, butcheries with their products have a clear traceability. Therefore, some enterprises have developed a contract farming system from farms to slaughterhouses and to supermarkets or their butcheries. An example is the enterprises of CP Group invested by Thailand and Phuc Thinh farm. However, these products are still limited, and represented about 10% of poultry meat (Table 1 and 2). It is more complex to cope with accounting data of these animal enterprises, so financial analysis is not calculated for these two enterprises.

**Table 1 Typology of stakeholders of poultry supply chains**

Stakeholders	Sub-stakeholders	Scale of operation (heads/farm/year)	Surveys (farms, enterprises)	Production (% products)*
Traders of live poultry	Small traders	14,045	8	35
	Large traders	132,870	25	65
Slaughter-houses and retail trader of poultry meat	Small manual slaughter-houses	4,775	12	25
	Large manual slaughter-house	79,060	23	65
	Enterprises	201,600	2	10

\* Source: Vietnam General Statistics Office, 2009; and MARD/DLP, 2008.

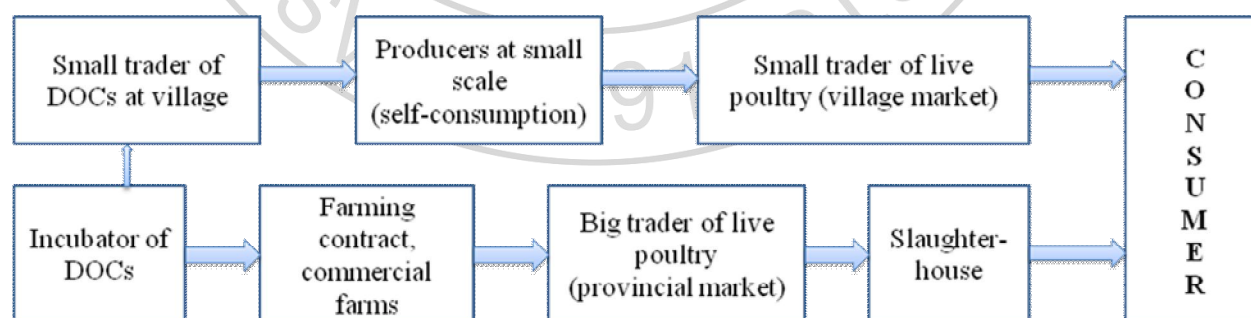
**Table 2 Characteristics of stakeholders of poultry meat supply chains**

Intermediary factors	Traders of live poultry		Poultry slaughter-houses		
	<i>Small traders</i>	<i>Large traders</i>	<i>Small manual slaughter- houses</i>	<i>Large manual slaughter- houses</i>	<i>Enterprises</i>
Mode of activities	Live poultry is bought at small farms or rural roadside market; and sold at village markets	Live poultry is bought at many districts, provinces or unofficial imported; and sold at special poultry markets	Poultry is bought at smallholders or special poultry market; and sold at village markets	Poultry is bought at special poultry market; and sold at urban markets	Live poultry is supplied by contract farming to slaughter-house; and distributed at butcheries, supermarkets

Location of operation	Rural or village markets	The edge of Cities; provincial markets (around Hanoi and Hadong Cities)	Rural or village markets	The edge of Cities (suburban districts)	Industrial zones; abattoir of enterprise (CP Group; Phuc Thinh)
Mode of transport	Bicycle, motorbike	Motorbike or small trucks sometimes	Bicycle, motorbike	Motorbike	Specialized trucks with cold system
Experience of activity (years)	8.4	10.4	7.7	10.7	4.5
Traceability or relation with supplier	No	No	No	No	Yes
Types of poultry	Local or cross-bred chickens and ducks	Cross-bred chickens, ducks, hens, layer ducks	Industrial chickens, ducks, hens	Cross-bred or industrial chickens, ducks, hens	Industrial chickens
Familial labors (persons)	1.1	2.1	2.0	2.5	-
Salary labors (persons)	0	0.3	0	1.7	50
Hours of activity per day / household	10.9	25.2	15.8	30.4	By shift

## Organization of the poultry meat commodity chains

The institutional structure of the poultry meat commodity chains in this region of research is diversified and complex. We can simply describe this institutional structure by these four chains of poultry meat markets:



**Figure 1: Broiler supply chains in region of research**

This schema of poultry meat commodity chains comprises five principal chains from inputs with day old chicks (DOCs) to consumers: (1) inputs comprise the animal feed, incubators of DOCs, ducklings and veterinary pharmaceutical products...; (2) Factor of

production comprises the poultry production systems at different scales; (3) Factor of intermediary middlemen comprises of live poultry traders and slaughter-houses at different scales; (4) Factor of poultry markets; and (5) Factor of final consumers.

The institutional structure of the poultry meat commodity chains in Hanoi region is as follows

(1) The roadside markets where live poultry is collected from the small producers; few chickens are sold. These markets are a favourable intersection between the communes, villages or the points of halfway connecting the villages with the concentrated market in one or some communes. In addition, it is a point for the small producers who would like to contact with small collectors willing to buy more than 10 chickens at the gate farms.

(2) The kermis, commune and village wet markets: Generally one to three small traders per market are selling a few birds, on average from 5-10 live birds per day per trader. Local live poultry race is often sold on the first and the fifteenth day of the lunar month. The DOCs, ducklings are usually sold at the kermis wet markets of commune.

(3) The specialized poultry market is a large market for only trading the live poultry (for instance the Ha Vy market in Thuong Tin District). Live poultry is sold on wholesale, comprising the live poultry, the poultry carcass so as to meet the demand of consumers. From this market, small traders deliver live poultry and carcasses to the markets in urban zones, to restaurants and to final consumers. This special market supplied about from 10,000 to 20,000 live birds per day.

(4) Manual slaughter-houses: each village has two or three small manual slaughter-houses where the broiler industrial chickens and ducks are slaughtered. Less than some tens broilers are slaughtered per day. These products are directly sold at village markets to local consumers.

In addition, at Ha Vy village of Thuong Tin District, there are about 70% of large manual slaughter-houses where the live poultry is slaughtered manually and sold at wet markets in urban and suburban areas of Hanoi. Scale of operation is between 30 and 200 birds per day per slaughter-house. This village of Ha Vy, supplied about 75% of poultry meat for Hanoi urban areas. Resource of familial labours is principally used in these establishments.

## Financial analysis of broiler poultry production systems

Farmers raising broiler industrial chickens by contract farming with animal enterprises have received a stable income thanks to their terms of agreement. The gross value-added (VAB) averaged 22,083 thousand of Vietnam Dongs (Vnd) per flock of production, the net value-added has been Vnd 16,692 thousand. The net income per year and per farm is about Vnd 54,535 thousand or Vnd 25,089 thousand per familial labor per year. The ratio VAB / GP reached 12.4%.

Many commercial farms of broiler industrial chickens (production scale is from 1,000 to 8,000 chickens per year) were loss-making in these three recent years caused by strong fluctuation of inputs, increased with animal feed and decrease of output, with live broiler chickens. VAB averaged Vnd 5,843 thousand per flock of production or VAN is about Vnd 5,262 thousand per flock. Net income from this production has obtained Vnd 29,364 thousand per farm per year or Vnd 12,364 thousand per family labor per year. The rate of VAB / GP has reached 18.6%.

For satisfying the domestic consumers with local and cross-bred chicken races, many farms have chosen these chicken races for raising at semi-commercial (production scale is from 300 to 600 chickens per year). The VAB averaged Vnd 4,849 thousand per flock, or VAN is Vnd 4,230 thousand per flock. Net income per year per farm is about Vnd 12,272 thousand or Vnd 6,615 thousand per family labor. The ratio VAB / GP is 34.6%.

Broiler ducks and Muscovy ducks production (production scale is from 500 – 10,000 heads per year) face difficulties caused by a wide fluctuation of inputs/outputs, and epidemic diseases as well. Many broiler duck farms have had a loss-making result. The VAB from broiler duck and Muscovy ducks production was Vnd 2,095 thousand per flock, or the VAN is Vnd 1,644 thousand per flock. Net income has reached Vnd 10,613 thousand per farm, per year or Vnd 5,543 thousand per family labor. The ratio VAB / GP is 8.8%.

Backyard poultry production aiming at self-consumption had production scale from 80 – 200 heads per farm, per year. The VAB averaged Vnd 1,718 thousand, and the VAN was Vnd 1,465 thousand per flock of production. The net income per farm per year was Vnd 3,669 thousand or Vnd 1,693 thousand per family labor. The ratio VAB / GP is 46.5%.

## Financial analysis of stakeholders

The sphere of activity of small live poultry traders was limited around the same village market or some neighboring markets in the district. This activity does not require the investment or large capital and there are about one to three small traders. The VAB of this activity was Vnd 102,652 thousand, or the VAN is Vnd 100,707 thousand per farm per year. The net income was Vnd 98,423 thousand per farm per year or Vnd 41,941 thousand per family labor. The ratio VA / GP is 7.7%.

Large wholesalers of live poultry obtained a high value-added. The VAB from this activity was Vnd 590,170 thousand, and VAN is Vnd 584,732 thousand per farm, per year. The net income averaged Vnd 566,875 thousand per farm, per year or Vnd 251,698 thousand per family labor. The ratio VAB / GP is 5.8%.

Small manual slaughter-houses have processed about 5-8 broiler industrial chickens for village market obtaining the VAB of Vnd 66,134 thousand or VAN is 63,799 thousand Vnd per farm, per year. The net income obtained was Vnd 62,990 thousand per year, or Vnd 31,112 thousand per family labor, per year. The ratio VAB / GP is 15.4%.

Large manual slaughter-houses supplying principally the poultry meat for Hanoi City have obtained the VAB of Vnd 614,159 thousand or, the VAN of Vnd 605,277 thousand per farm, per year. The net income obtained was 574,673 thousand Vnd per farm, per year or Vnd 267,964 thousand per family labor per year. The ratio VAB / GP is 9.9%.

## Conclusions

Poultry production plays an important role in the livelihood of households in rural area. However, this production has been facing some difficulties caused by strongly fluctuation of inputs, outputs and epidemic diseases on birds.

Poultry supply chains in this region are really complex. Local or cross-bred broiler chickens have a good economic performance, but output is still unstable. Industrial broiler chicken has more and more important role but the economic profits are unsettled.

Traders of live poultry and manual slaughter-houses have a good economic performance originating from a low investment rate, the use of familial labor, and selling directly to consumers.



Poultry meat organization in this region of research is still complex with many different factors. There are not many poultry meat products with a good traceability. The system of automatic processing of live poultry is still limited. In addition, the supermarket chains are not well developed. The consumers are to be informed about the useful information on food safety standards.



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